

REMARKS

Claims 1, 2, 4-6, and 12 are now pending in the application. Claims 1 and 12 are independent. Claim 3 has canceled and replaced by new independent claim 12, and claims 7-11 have been canceled as being drawn to the non-elected invention.

Election/Restriction Requirement

Claims 1, 2, 4-6, and 12 are now the subject of examination in this application. Non-elected claims 7-11 in Group II have been canceled without prejudice or disclaimer by this Amendment.

Anticipation Rejection By Tsukihashi et al.

Withdrawal of the rejection of claims 1-6 under 35 U.S.C. §102(e) as being anticipated by Tsukihashi et al. (US 6,560,180) is requested. It appears that the Examiner may have intended to designate only claims 1-2 and 4-6 as being anticipated, due to the indication below that claim 3 was drawn to allowable subject matter and would be allowed if rewritten in independent form.

Applicant notes that anticipation requires the disclosure, in a prior art reference, of each and every limitation as set forth in the claims.¹ There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. §102.² To properly anticipate a claim, the reference must teach every element of the claim.³ “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference”.⁴ “The identical invention must be shown in

¹ *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985).

² *Scripps Clinic and Research Foundation v. Genentech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991).

³ See MPEP § 2131.

⁴ *Verdegaal Bros. v. Union Oil Co. of Calif.*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

as complete detail as is contained in the ...claim.”⁵ In determining anticipation, no claim limitation may be ignored.⁶

The applied art fails to meet this threshold burden, at least with respect to independent claim 1, as discussed further below.

Discussion of Applicants’ Disclosure

Applicants’ disclosed and claimed invention is related to a data recording method for an optical disk drive, more specially, to a data recording method for an optical disk drive for dealing with the event of recording interruption, for example, a method by which recording manners can be unitized and the inferior recording quality caused by servo signal errors can be avoided.

For example, in one embodiment, the claimed data recording method for an optical disk drive includes the following steps. First, several data blocks are encoded and recorded sequentially, and it detects if the buffer under run occurs. If the buffer under run occurs, the recording does not stop immediately until at least the main data of the data block where the buffer under run occurs have been recorded completely. Afterwards, the data block next to the data block where the buffer under run occurs is re-encoded and recorded.

Discussion of Tsukihashi

Tsukihashi has, as an object of his invention, to provide a disk storage device that can continuously execute additional writing in such a way that the beginning of recording data to be additionally written is substantially and seamlessly joined with the end of data already recorded.

Tsukihashi relates to a disk storage device for storing digital recording data on a disk using an optical beam emitted from an optical head. In particular, Tsukihashi appears to relate to

⁵ *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

⁶ *Pac-Tex, Inc. v. Amerace Corp.*, 14 USPQ2d 187 (Fed. Cir. 1990).

a disk storage device that can write additional data onto a disk while maintaining continuity of recording data.

When a record decision unit 22 judges that recording has been interrupted, the recording data in a predetermined frame is ended. Data are continuously recorded onto a disk until the frame synchronous signal duration following the predetermined frame. Thereafter, the control output generated from the head output controller 14 is controlled to interrupt the recording operation.

When the record decision unit 22 judges the resuming of recording, the control output from the head output controller 14 is controlled to resume the recording operation onto the disk from the frame synchronous signal duration in which the recording of data onto the disk has been interrupted.

According to Tsukihashi's invention, when the record decision unit judges that there has been an interruption of recording, recording data in a predetermined frame is terminated. After data is continuously recorded onto a disk until the duration of a frame synchronous signal following the predetermined frame, the control output generated from the head output control circuit is controlled to cease the recording operation.

Meanwhile, when the record decision unit judges the start of recording, the control output generated from the head output control circuit is controlled to initiate recording onto the disk from the frame synchronous signal duration for which recording data onto the disk is ceased. Thus, when recording data is additionally written onto the disk used when a halt of recording occurs, in continuous with the recorded data, the joint portion between the end of the recorded data and the beginning of the recording data for additional writing acts as a frame synchronous signal duration. This is asserted as facilitating management of data for which recording is stopped or started.

As mentioned at col. 5, lines 4-14 of Tsukihashi, when the record decision unit 22 determines a cease of a data recording operation onto a disk, the encoder 11 continuously creates

encoded data. Furthermore, the encoder 11 creates a frame synchronous signal in the next coming EFM frame, thus ceasing encoding process. Accordingly, the paragraph only mentions that record decision unit 22 determines a cease, but does not mention how the timing of stopping recording is determined, *i.e.*, Tsukihashi fails to disclose the timing of stopping recording.

Moreover, Tsukihashi's invention is mainly used for CD-R, CD-RW systems, the data block are interleaved into sub-blocks first and the sub-blocks are encoded and recorded afterwards. The concurrently submitted IDS provides the "Standard ECMA-130" document that mentions the operation of CIRC (Cross Interleaved Reed-Solomon Code), in which page 33, paragraph C. 1 "The error correction encoding of the F1-frames is carried out by a Cross Interleaved Reed-Solomon Code (CIRC) encoder consisting of three delay sections and two encoders C1 and C2," and page 35, Figure C1 shows that 24 8-bit bytes from F1-frame grouped into 12 16-bit words for encoding. Accordingly, the "subcode frame" mentioned at col. 5, lines 4-14 of Tsukihashi is the frame after interleaving, thus "subcode frame" is totally different from "main data area" that is not interleaved.

Therefore, Tsukihashi clearly fails to disclose that stopping a recording operation after main data of the data block currently being recorded has been recorded.

In addition, as further mentioned at col. 5, lines 61-67 of Tsukihashi, when the encoder 11 starts its encoding operation, the interleave length of CIRC (108 frame at maximum in the EFM frame) is secured for data to be encoded immediately before a recording start time based on data stored in the internal RAM 26. This paragraph is mainly related to an encoding process, the determination of recording position or timing is not mentioned.

Clearly, Tsukihashi fails to disclose the step of restarting to encode and record from the beginning of the next data block.

With respect to the rejection of Claim 2, discussed further below, and as mentioned in col. 5, lines 61-65 of Tsukihashi, when the encoder 11 starts its encoding operation, the interleave length of CIRC (108 frame at maximum in the EFM frame) is secured for data to be

encoded immediately before a recording start time based on data stored in the internal RAM 26. Assuming the data stored in the internal RAM 26 is referred to auxiliary data area, the paragraph is related to the encoding process in connection to start time of recording rather than the position or timing of stopping recording. Therefore, Tsukihashi fails to disclose the feature that recording stops at the auxiliary data area.

Specific Deficiencies of the Applied Art

In particular, the applied art does not disclose a data recording method for an optical disk drive, that includes, among other features, “encoding and recording data blocks, ***wherein each of the data blocks comprises a main data area and an auxiliary data area***...stopping a recording operation ***after at least one main data of the data block currently being recorded has been recorded***...and ***restarting to encode and record from the beginning of the next data block***”, as recited in original independent claim 1.

Further, the applied art, does not disclose a data recording method for an optical disk drive, wherein “the recording stops at the auxiliary data area”, as recited in original dependent claim 2.

Accordingly, reconsideration and allowance of claims 1-2 and 4-6 are respectfully requested.

Allowable Subject Matter

Applicants note with appreciation the indication that claim 3 is drawn to allowable subject matter. As indicated by the examiner, Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

In reliance upon the indication of allowable subject matter, claim 3 has been replaced by new independent claim 12. No new matter is involved with new claim 12. Allowance of claim 12 is requested.

Conclusions

In view of the above amendment and remarks, applicants believe that each of pending claims 1, 2, 4-6, and 12 in this application is in immediate condition for allowance. An early indication of the same would be appreciated.

In the event the Examiner believes that an interview would be helpful in resolving any outstanding issues in this case, the undersigned attorney is available at the telephone number indicated below.

Applicants believe that no fee is due with this response. However, if any fee is due, please charge CBLH Deposit Account No. 22-0185, under Order No. 22171-00021-US1 from which the undersigned is authorized to draw.

Respectfully submitted,

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